

39.GS/4:
BUL 57

Bulletin No. 57

M. M. LEIGHTON

October 30, 1921.

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF INTERNAL AFFAIRS
James F. Woodward, Secretary

BUREAU OF TOPOGRAPHIC AND GEOLOGICAL SURVEY
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COAL BEDS IN BEAVER COUNTY, PENNSYLVANIA

By

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Introduction.

Beaver County is one of the smallest producers of bituminous coal in Pennsylvania. Although the county contains six coal beds that are locally valuable, they vary in thickness and quality, and their mineable areas are small. At least two beds of clay associated with the coal beds are so useful that they greatly increase the value of the overlying coal.

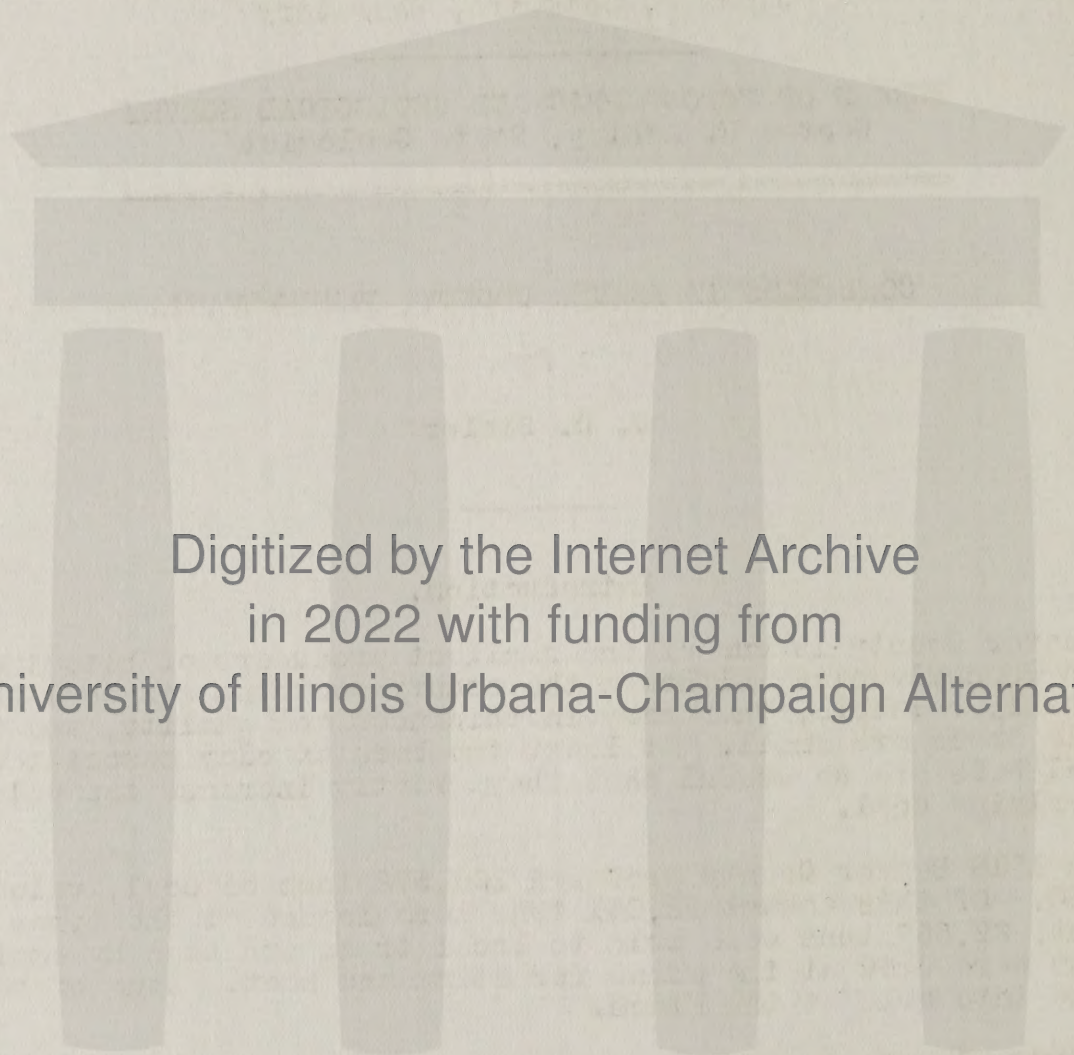
In 1918 Beaver County produced 128,572 tons of coal, valued at \$342,050. Of this amount 98,041 tons were loaded at the mines for shipment; 29,567 tons were sold to local trade and used by employees; 964 tons were used at the mines for steam and heat. None of the coal was made into coke at the mines.

Beaver County is on the west boundary of the State between Lawrence and Washington counties. Its greatest width from north to south is $27\frac{1}{2}$ miles and from east to west is $20\frac{1}{2}$ miles. Its area is 429 square miles. The population in 1920 was 111,621.

Beaver County has ample transportation facilities to any point for its coal and industrial products. The Pennsylvania Railroad and the Pittsburgh and Lake Erie Railroad follow the Beaver and Ohio rivers; the Baltimore and Ohio crosses the northeastern part of the county.

The river valleys are densely populated, and have many miles of improved roads, over which much coal for local consumption is hauled.

Barges on Ohio River annually transport large quantities of coal from the southern part of the county.



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Ohio and Beaver rivers, and their major tributaries flow through deep valleys. The slopes are abrupt at their base except where meandering streams have worn back their valleys, and formed broad flood plains. The slopes are more gentle on the water sheds. The rivers flow on transported glacial drift. The larger valleys have a series of five terraces on their slopes. Numerous hills and ridges with steep slopes and deep gulleys at their base are flat-topped and suggest the remnants of an old peneplain. A rise of about 500 feet to the northwest restricts the Pittsburgh coal to a few hilltops in the southern part of the county, brings the Allegheny coals to outcrop along the Ohio, and even exposes the Pottsville formation along the Beaver.

STRATIGRAPHY.

The Carmichaels formation, composed of clays, sands and gravels, occupies the old river channels.

The Monongahela formation is restricted to a few hills in the southern part of the county. The upper part of the formation has been eroded until only 50 feet of sandstones and shales remain above the Pittsburgh coal.

The Conemaugh formation is largely composed of shales, with a few thin limestones and sandstones. The coals are thin and unimportant. Its average thickness is about 525 feet.

The Allegheny formation has a large area in the county and contains workable coals. It averages about 325 feet thick and is composed of sandstones, shales, limestones, and valuable coal and clay beds.

The Pottsville is the lowest formation exposed in the county. It is composed chiefly of a massive sandstone and shales, and its coals are of little value.

COAL BEDS.

Brookville ("A") Coal. This coal has a limited outcrop in the county. It has been mined at the mouth of Brady Run, where it is 33 inches thick, with only 6 inches of clean coal. Along Beaver River the bed is in two benches 14 and 7 inches thick, separated by 3 feet of shale. In other parts of the county the coal is either below drainage or covered with glacial drift.

Clarion ("A'") Coal. This coal is persistent in the county, but averages less than 6 inches thick.

Scrubgrass Coal. This bed is thin but persistent. The maximum thickness is 18 inches on the Connoquenessing, but at all other localities it is much less. The coal has good quality.

Lower Kittanning ("B") Coal. This bed ranges from 14 inches to 2 feet 11 inches thick, averaging about 2 feet. It is lenticular and high in sulphur, particularly so east of Beaver River, where it is known as the "sulphur vein." The Lower Kittanning is 2 feet 6 inches thick on North Branch of Brady Run, where its quality is excellent and has been used for blacksmithing purposes. On Blockhouse Run the coal is 18 inches thick, and high in sulphur. South of Phillis Island the bed is 2 feet 11 inches thick, including 2 inches of shale 6 inches above the bottom. At Monaca the bed is 2 feet thick, but the upper half is very bony.

A bed of excellent clay underlying the coal adds great commercial importance to that horizon. The coal can be mined profitably only in conjunction with the clay.

Middle Kittanning ("C") Coal. This bed, lying about 35 feet above the Lower Kittanning coal, although persistent, is exceedingly variable in thickness. In the area along Ohio River west of Dam No. 6 the bed is usually between 14 and 26 inches thick, free from partings and apparently improves in quality and increases in thickness westward. On both sides of the river in the vicinity of Georgetown it is 2 feet to 2 feet 6 inches thick, and is an excellent block coal. It has been opened for local fuel.

The Middle Kittanning coal is 4 inches thick at Vanport; from 2 feet 6 inches to 3 feet thick at the mouth of Mill Creek. On North Branch of Brady Run it is 16 inches thick, including 6 inches of shale 3 inches above the bottom; south of St. Clair the bed ranges from 14 to 20 inches thick.

East of Beaver and Ohio rivers the coal is generally uniform in thickness, of fair quality, and free from partings. It ranges from 14 to 20 inches thick.

Upper Kittanning ("C'") Coal. This bed is thin and unimportant in the county, seldom being over 6 to 8 inches thick. On Brush Run, however, a coal, possibly the Upper Kittanning, has been mined locally and is reported to be 4 feet thick, including 6 to 12 inches of parting.

The Upper Kittanning in Beaver County is locally cannel coal. At Cannelton the bed is almost entirely cannel coal, having a maximum thickness of 13 feet, and averaging 7 to 8 feet. It fills a race-track-like trough about 300 feet wide, extending around an oval 2 miles long by 1 mile wide. Bituminous coal is 1 foot thick in the center of this basin, but thins to 4 inches at the edge.

Lower Freeport ("D") Coal. This bed, lying about 60 feet below the Upper Freeport coal, is thin in the county, having an average thickness of 15 inches. Although locally it is much thicker, it is also lacking in many localities. It is bony and impure where mined. In the vicinity of Baden it is 2 feet 6 inches thick. On Trough Run, opposite Beaver Falls the bed is an impure cannel coal 4 feet thick. On Blockhouse, McKinley, Brady, and Two Mile Runs, Raccoon Creek,

Lower Kittanning ("B") Coal. This bed ranges from 14 inches to 2 feet in thickness, averaging about 2 feet. It is located in the high hills, particularly so east of Beaver River, where it is known as the "eastern vein". The lower Kittanning is 2 feet 6 inches thick on North branch of Brady Run, where the quality is excellent and has been used for blacksmithing purposes. On Blackhouse Run the coal is 18 inches thick, and high in sulfur. South of Brady Run the bed is 2 feet 11 inches thick, including 2 inches of waste 2 inches above the bottom. At Monaca the bed is 2 feet thick, but the upper part is very hard.

A bed of excellent clay underlying the coal adds great commercial importance to that horizon. The coal can be mined profitably only in conjunction with the clay.

Middle Kittanning ("C") Coal. This bed, lying about 25 feet above the lower Kittanning coal, although partially, is essentially variable in thickness. In the area along Ohio River west of mile No. 2 the bed is usually between 1 and 23 inches thick, five feet varying and apparently improves in quality and thickness in various directions. On both sides of the river in the vicinity of Conestoga is a 2 feet 10 inch 4 inches thick, and is an excellent black coal. It has been opened for local fuel.

The Middle Kittanning coal is 4 inches thick at Westport, 2 feet 6 inches to 3 feet thick at the mouth of Mill Creek, Co. Wayne. Branch of Brady Run it is 10 inches thick, including 2 inches of waste 3 inches above the bottom, south of St. Clair the bed ranges from 12 to 20 inches thick.

East of Beaver and Ohio rivers the coal is generally uniform in thickness, of fair quality, and five feet partings. It ranges from 12 to 20 inches thick.

Upper Kittanning ("D") Coal. This bed is thin and unimportant in the country, seldom being over 6 to 8 inches thick. On Brady Run, however, a coal, possibly the Upper Kittanning, has been mined locally and is reported to be 4 feet thick, including 2 to 10 inches of parting.

The Upper Kittanning in Beaver County is locally cannot coal. At Conestoga the bed is almost entirely cannot coal, having a maximum thickness of 13 feet, and averaging 7 to 8 feet. It fills a race-track-like trough about 300 feet wide, extending around an oval 2 miles long by 1 mile wide. Bituminous coal is 1 foot thick in the center of this basin, but thins to 4 inches at the edge.

Lower Trepost ("E") Coal. This bed, lying about 60 feet below the Upper Trepost coal, is thin in the country, having an average thickness of 13 inches. Although locally it is much thicker, it is also lacking in many localities. It is hard and impure where mined. In the vicinity of Brady Run it is 2 feet 6 inches thick. On Brady Run, opposite Beaver Run the bed is an impure cannot coal 4 feet thick. On Blackhouse, McKinley, Brady, and Two Mile Runs, Conestoga Creek,

Island Run and Brush Run, the coal is good and regular. Its thickness ranges from 12 to 30 inches.

Upper Freeport ("E") Coal. This bed is the most important Allegheny coal in the county, although it is more irregular and lenticular here than in adjoining counties. It is persistent, and ranges from 6 inches to 5 feet thick. Where thickest it has 6 to 8 inches of impure, shaly top coal, and the main bench of good coal is 2 feet 5 inches to 3 feet thick. In the northern part of the county it is 4 to 5 feet thick where not removed by erosion. The Upper Freeport coal has been mined extensively in the western part of the county and shipped as a gas coal. It has a persistent thickness of 4 feet 6 inches, and is divided into four benches by thin shale partings. The bottom and top benches are impure and worthless. The main bench is good coal, averaging 3 feet thick. The areas of this thick coal in this vicinity are small, and the coal is high in sulphur. The thickness diminishes northward, but the coal is purer. In the region east of the Beaver and north of the Ohio, the bed is thin, averaging about 17 inches thick, and is separated by many partings.

South of Ohio River and east of Raccoon Creek the coal locally is fairly thick but is much parted with bone and shale. Near the mouths of Logtown, Elkhorn, and Moon runs the coal is thin, but the bed has been opened at many places for domestic fuel on their headwaters, and averages 2 feet 2 inches thick.

The Upper Freeport coal is lenticular south of Ohio River and west of Raccoon Creek, ranging from 16 inches to nearly 7 feet in thickness. It carries several bone partings, but the benches are thicker than in the region north, and tend to overcome this disadvantage. On Squirrel, Fish Pot, and Island runs, and Service Creek the coal is separated by partings thick enough to make it a "split" bed. On Raccoon Creek the coal is thin, but clean and excellent. Its average thickness is 2 feet, but locally it is lenticular, and reaches a maximum of 3 feet.

Brush Creek Coal. This bed, lying about 95 feet above the Upper Freeport, is mined only for house coal. In few places it is more than 20 inches thick, and averages much less. It is generally represented by a few feet of bituminous shale.

Pittsburgh Coal. A few hilltops in the southeastern part of the county contain this bed, and it has been opened on all of them. The coal is under thin cover, has been leached and weathered, and does not have its usual good quality. It is 5 to 6 feet thick, and is divided into four distinct benches by shale partings.

